REMARKS

The Applicant has filed the present Response in reply to the outstanding Official Action of January 10, 2006, and the Applicant believes the Response to be fully responsive to the Official Action for the reasons set forth below in greater detail.

At the onset, the Applicant would like to thank the Examiner for indicating that Claims 2-5, 7 and 10 have allowable subject matter and would be allowed if rewritten in independent form including the rejected base claim and all intervening claims.

However, since Applicant respectfully disagrees with the principle rejection, Applicant submits that such amendment is not needed at this time.

In the Official Action, the Examiner rejected Claims 1, 6, and 8-9 under 35 U.S.C. § 103(a) as being unpatentable over Giroux et al., United States Patent No. 6,618,378 (hereinafter "Giroux" in view of Goldman et al., United States Patent No. 6,829,224 (hereinafter "Goldman"). Specifically, the Examiner asserts that the plurality of queue groups $310._1$ -$310._N$ ("310") read on the packet FIFOs, recited in Claim 1.

Applicant respectfully disagrees with the Examiner's rejection and traverses with at least the following analysis.

The reference clearly states that the queue groups are used to queue cells, not packets.

Goldman describes, "the cell queue memory 135 is broken up into a **plurality of queue** groups $310._1$ -$310._N$ ("310") which are associated with the number of output ports (or virtual interface) supported. (Figure 3 shows an organization of the **cell queue memory 135.**) Each queue group 310 is further broken up into one or more class of service queues. For example, queue group 310, includes, for example, sixteen classes of service queues $315._1$ -$315._{16}$ ("315"). The number of class of service queues is a matter of design choice and may vary from one

implementation to another. The class of service queues 315 typically represents priority levels depending on the **cell type"**. See Col. 4, lines 45-56. Additionally, "incoming **cells** are stored at the end of the class of service queue that corresponds to the **cell's** VC, while outgoing **cells** are retrieved from the head of the class of service queue that corresponds to the **cell's** VC." Id. at 65-67. Based on the queue cell counts, and priority information of the queues, the departure controller 250 then determines which queue to service. The departure controller 250 directs the queue control circuit 240 by way of signal line(s) 255 to **retrieve cells from the cell queue memory** 135 and place them in one of the output FIFOs $265._1$ -$265._N$.

Goldman constantly refers to "cells" and not "IP packets" when referencing the service queue, which supports the definition, as provided by Goldman, i.e., the "cell queue memory".

It is clear that the plurality of queue groups are not **packet** FIFOs, rather they appear to be just an input buffer prior to being transmitted to the cell FIFOs, i.e., cell queue memory.

In contrast in the claimed invention, IP packets are stored in the respective FIFO 111 and then are divided into ATM cells. A packet FIFO is allocated to a particular VCI, whereas at best, Goldman suggests that more than one VC may be assigned to a class of service queues.

Accordingly, Applicant submits that the hypothetically combined references are patentably distinct from Claim 1, as the references fail to teach, suggest or render obvious each and every limitation of Claim 1.

Applicant further submits that Claim 6 is patentable based up its dependency, whether directly or indirectly, from Claim 1.

Additionally, with respect to Claim 8, Applicant respectfully submits that Claim 8 is patentable over the cited references based upon the above-identified reasons and based upon at least the following additional reasons.

Applicant submits that neither reference, whether take alone or in any combination thereof, teaches, suggests or renders obvious, discarding an entire packet on a packet basis, when the packet FIFOs are full. At best, Goldman teaches discarding a frame when the "accumulated discard probably" is greater than a random value. However, discarding a packet when an "accumulated discard probably" is greater than a random value is not the same or equivalent to discarding the packet when the packet FIFO is full. In fact, the reason for using the "accumulated discard probably" is to prevent the queues from becoming full.

> [s]ince the instantaneous discard probability ($P._{INST}$) is added to the accumulated probability ($P._{ACCUM}$), **the accumulation factor is provided to prevent $P._{ACCUM}$ from growing too fast and causing excessive cell (and frame) discards.** With each successive frame that is accepted, the accumulation probability increases by the current frame's instantaneous discard probability multiplied by an accumulation factor. Consequently, the discard probability increases over time until a frame is discarded. Thereafter, the accumulated probability is reset to zero. **This reduces clumping of discarded frames in time, smoothing the discard interval. Smoothing the discard interval reduces TCP global synchronization, thereby enhancing TCP performance.** Additionally, if a class of service queue's cell count is zero, the accumulated probability for that queue may be optionally reset to zero. This may be useful because the average cell count Q_{AVG} may lag significantly behind the current cell count, and inflating the discard probability may not be desirable when the class of service queue is empty.
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> See Goldman Col. 5-7.

The Giroux reference does not teach discarding an entire packet. Giroux teaches that "[c]ells are discarded in an ATM network during traffic congestion when buffers at the nodes of the network become full or near full. Cells transmitted over VCs with higher levels of service are less likely to be discarded than cells transmitted over VCs with lower levels of service." See Col. 1, lines 55-60. Giroux further teaches that:

> [i]f the queue 26 becomes full then all incoming cells will be lost regardless of their priority. Therefore, in order to ensure that there will be room for high priority cells in the queue 26, the CLP field of incoming cells may be checked so that **lower priority cells can be discarded** and not stored in the queue in order to leave room for the possible arrival of higher priority cells. One method of doing this involves checking the size or length of the queue whenever an incoming cell is received. **If the queue size is within a predetermined discard range then the cell may be discarded if its CLP field indicates that the cell is not high priority**...Cell discard decisions may be based on other congestion measures instead of queue size.
>
> See Col. 7, lines 18-40.

In contrast, in the claimed invention when the ATM cells are full and the packet FIFOs are also full, the IP scheduling section discards an entire packet on a packet basis.

Neither reference suggests or teaches this feature. Accordingly, Claim 8 is patentably distinct from the hypothetical combination.

Furthermore, Applicant respectfully submits that Claim 9 is patentably distinct from the cited references based upon its dependency from both Claims 1 and 8 and based upon the above-identified reasons.

For all the foregoing reasons, the Applicant respectfully requests the Examiner to withdraw the rejections of Claims 1, 6, 8 and 9 pursuant to 35 U.S.C. § 103(a).

In conclusion, the Applicant believes that the above-identified application is in condition for allowance and henceforth respectfully solicits the Examiner to allow the application. If the Examiner believes a telephone conference might expedite the allowance of this application, the

Applicant respectfully requests that the Examiner call the undersigned, Applicant's attorney, at the following telephone number: (516) 742-4343.

Respectfully submitted,

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